

**Amendments to the Specification:**

Please delete the present Abstract, appearing under the heading ABSTRACT OF THE DISCLOSURE, and insert therefor the revised Abstract appended to this amendment.

Please add the following section immediately following the title:

**CROSS-REFERENCE TO RELATED APPLICATIONS**

This application is a continuation of U.S. Application Serial No. 10/630,390, titled "User-Assisted Programmable Appliance Control," by M. Chuey, filed July 30, 2003, which is hereby incorporated by reference in its entirety.

Please delete all text in the section titled SUMMARY OF THE INVENTION and substitute the following text therefor:

The present invention provides a universal remote control that interacts with the user to assist in training to a particular remotely controlled appliance.

A programmable control for an appliance is provided. The appliance responds to one of a plurality of transmission schemes. The programmable control includes a transmitter for transmitting a radio frequency activation signal based on any of the transmission schemes and a user programming input. Control logic implements a rolling code programming mode, a fixed code programming mode and an operating mode. In rolling code programming mode, the control logic generates and transmits a sequence of rolling code activation signals until user input indicates

a successful rolling code transmission scheme. In fixed code programming mode, the control logic receives a fixed code from the user programming input then generates and transmits a sequence of fixed code activation signals until user input indicates a successful fixed code transmission scheme. The control logic pauses for a preset amount of time between the transmission of each activation signal in at least one of the sequence of rolling code activation signals and the sequence of fixed code activation signals. The preset amount of time is sufficiently long enough to permit the user to respond. If the user has not responded by the end of the preset amount of time, the control unit transmits the next activation signal.

In an embodiment of the present invention, the user responds by selecting one of a plurality of activation inputs. The control unit stores characteristics of the last transmitted activation signal in association with the selected activation input. In the operating mode, the control logic determines which activation input has been asserted and transmits an activation signal based on the stored characteristics associated with the asserted activation input.

A method of activating an appliance controlled by a radio frequency activation signal is also provided. If a user indicates that the appliance is activated by a rolling code activation signal, a sequence of different rolling code activation signals is transmitted. Each rolling code activation signal is separated from the next rolling code activation signal by a preset amount of time. The sequence of rolling code activation signals is transmitted until the user indicates a successful rolling code transmission. Data representing a rolling code scheme used to generate the successful rolling code transmission is then stored. If the user indicates that the appliance is activated by a fixed code activation signal, a fixed code word is used to generate and transmit each of a sequence of different fixed code activation signals. Each fixed code activation signal is separated from the next fixed code activation signal by the preset amount of time. The sequence of fixed code activation signals is transmitted until the user indicates a successful fixed code transmission. Data representing the fixed code word and a fixed code scheme used to generate the

successful fixed code transmission is then stored. An activation signal based on the stored data is generated and transmitted in response to an activation input.

In an embodiment of the present invention, the activation input is one of a plurality of activation inputs. The user associates one of the activation inputs with data representing one of either the rolling code scheme used to generate the successful rolling code transmission or the fixed code scheme used to generate the successful fixed code transmission.

In another embodiment of the present invention, the user associates data representing the rolling code scheme used to generate the successful rolling code transmission with one of a plurality of activation inputs by indicating the successful rolling code transmission.

In still another embodiment of the present invention, the user associates data representing the fixed code word and the fixed code scheme used to generate the successful fixed code transmission with one of a plurality of activation inputs by indicating the successful fixed code transmission.

A method of programming a programmable remote control is also provided. User type input specifying activation signal type is received. If the user type input specifies variable code type, variable code activation signals are transmitted spaced apart by a preset amount of time until user success input is received indicating a target appliance has been activated. If the user type input specifies fixed code type, user fixed code input providing a fixed code is received and fixed code activation signals are transmitted spaced apart by the preset amount of time until user success input is received indicating the target appliance has been activated. The preset amount of time is sufficiently long enough to permit a user to generate the user success input. Information specifying an activation signal for activating the target appliance is stored based on the received user success input.

A system for wirelessly activating an appliance is also provided. The system includes a radio frequency transmitter and memory holding data describing a plurality of transmission schemes. Control logic is operative to store a fixed code. If a fixed code is stored, a sequence of fixed code activation signals are transmitted based on the fixed code and data held in the memory until input indicating activation of the appliance is received. Each transmission of a fixed code activation signal in the sequence of fixed code activation signals is followed by a fixed code sequence time period without transmission long enough to permit a user to enter input indicating activation of the appliance. If no fixed code is stored, a sequence of rolling code activation signals is transmitted based on data held in the memory until input indicating activation of the appliance is received. Each transmission of a rolling code activation signal in the sequence of rolling code activation signals is followed by a rolling code time period without transmission long enough to permit the user to enter input indicating activation of the appliance. An indication as to which activation scheme activated the appliance is stored based on the received input indicating activation of the appliance. An activation signal is generated based on the stored indication and a received activation input.

A method of programming a programmable remote control is also provided. A test activation signal is transmitted based on one of a plurality of appliance activation schemes. If user input indicating appliance activation is received during a preset amount of time following transmission of the test activation signal, characteristics of the activation scheme used to transmit the test activation signal are stored. Otherwise, a different activation signal is transmitted as the test activation signal based on another of the plurality of appliance activation schemes if any of the activation schemes has not been used to transmit an activation signal.

The above features, and other features and advantages of the present invention are readily apparent from the following detailed descriptions thereof when taken in connection with the accompanying drawings.